

## PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference MF3	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI2004/000766	International filing date (day/month/year) 17-12-2004	Priority date (day/month/year) 22-12-2003
International Patent Classification (IPC) or national classification and IPC See Supplemental Box		
Applicant DZHAVAKHIA, Vitaly et al		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 7 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
  - ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application   |

Date of submission of the demand  30-06-2005	Date of completion of this report  15-03-2006
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: Cover sheet

**International patent classification (IPC)**

**A01N63/00** (2006.01)

**C07K14/21** (2006.01)

**C12N9/90** (2006.01)

**C12R 1/39** (2006.01)

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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## Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## Supplemental Box Relating to Sequence Listing

## Continuation of Box No. I, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis of:
- a. type of material
- ☒ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☐ on paper
- ☒ in electronic form
- c. time of filing/furnishing
- ☐ contained in the international application as filed
- ☒ filed together with the international application in electronic form
- ☐ furnished subsequently to this Authority for the purposes of search and/or examination
- ☐ received by this Authority as an amendment\* on \_\_\_\_\_
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

\* If item 4 in Box No. I applies, the listing and/or table(s) related thereto, which form part of the basis of the report, may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-10</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1, 2, 5-10</u>	YES
	Claims	<u>3, 4</u>	NO
Industrial applicability (IA)	Claims	<u>1-10</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

The present application relates to the polypeptide MF3 from *Pseudomonas fluorescence* which confers resistance of plants to microbial diseases and/or to attack of plant parasites. A method of isolating and purifying MF3, the DNA sequence encoding MF3, vectors and host cells, a composition comprising MF3 (or an active fragment or a functional derivative thereof) and a method of acquiring resistance of plants to microbes and parasites are described.

Reference will be made to the following documents cited in the International Search Report:

D1) Database Uniprot [Online], accession no. Q887W2, 1 June 2003, retrieved from EBI.

D2) Database Uniprot [Online], accession no. Q9I5A3, 1 March 2003, retrieved from EBI.

D3) US 6528480 B1

D4) Plant Science, 152: 123-134 (2000), Godoy A. V. et al.

D5) Abstracts of the General Meeting of the American Society for Microbiology, 102: 314, abstract no. N-53, Spencer M. & Anderson A.

D1 discloses an amino acid sequence which has 89,4% identity with SEQ ID NO:1 of claim 1.

D2 discloses an amino acid sequence which has 86,96% identity with SEQ ID NO:1 of claim 1.

Neither in D1 nor in D2 is it disclosed that the amino acid sequence, which sequence is very similar to SEQ ID NO:1, could render a plant resistant to microbial disease or attack of parasites.

...//...

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

D3 describes an MF2 protein derivable from *Bacillus thuringiensis* and the use of said protein as plant protectant.

D4 relates to cyclophilins which have an enzymatic activity of peptidyl-prolyl cis-trans isomerase and which are thought to be involved in plant response to environmental stresses.

Through D5 it is known that the *Pseudomonas* inhibits the growth of several plant pathogens and therefore has potential as a biocontrol agent.

Documents D1-D5 represent prior art and are not considered to be relevant for the assessment of novelty and inventive step of claims 1-10.

The invention according to claims 1-10 is novel and is industrially applicable.

In the present claim 3, the expression "the bioactive polypeptide MF3" is not sufficiently defined (see also Box VIII). The method according to claims 3 and 4 must be restricted to the introduction of the bioactive polypeptide MF3 which has the specific amino acid sequence of SEQ ID NO:1 (or an active fragment or a functional derivative thereof) in order to fulfil the requirement of inventive step for the entire scope of said claims.

Thus, due to the present wording, claims 3 and 4 are considered to lack an inventive step.

The wording of claim 8 should correspond to the wording used in claim 1. The expression "isolated components" is ambiguous and unclear. In order to specify the subject-matter of claim 8 the wording of claim 1 should be introduced into the claim. It is however also desirable to keep the present indication in the claim that the bioactive polypeptide MF3 of SEQ ID NO:1 (or an active fragment or a functional derivative thereof) is isolated.

The invention according to claims 1, 2 and 5-10 fulfils the requirement of inventive step.

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**Box No. VIII** Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The term "the bioactive polypeptide MF3" used in claim 3 is vague and undefined and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claim unclear (Article 6 PCT).